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WILLARD PRICE

**TO MAKE SHOES SHE STITCHES MANY LAYERS OF AMERICAN NEWSPAPER BETWEEN PIECES OF CLOTH; MOTHER IS ALSO COBBLER IN A VILLAGE BESIDE CHINA'S GRAND CANAL (Bulletin No. 1)**

Bulletin No. 1, November 10, 1947

# Grand Canal Is More than Transport Artery

CHINA'S Grand Canal (Yun Ho), reported breached by nationalist forces to unleash floods against a communist advance in the northern plains province of Hopeh, is known to the Chinese as "Move-Goods River."

The canal is generally regarded as the longest and, in sections, the oldest artificial waterway in modern use. Meandering southward for more than a thousand miles from Peiping to Hangchow, it crosses both the great Hwang (Yellow) and the Yangtze rivers.

## Chinese Canals Serve Many Purposes

In the 13th century, world traveler Marco Polo described it as "a wide and deep channel dug between stream and stream, between lake and lake, forming as it were a great river on which large vessels can ply."

To the people living along its banks (illustration, cover), the Grand Canal is more than a traffic and transport lane. It provides water for domestic purposes and irrigation, mud for fertilizing the fields, and food in the form of water plants and fish. The canal is foe or friend, depending on whether its waters bring flood devastation or fertility and life.

In shifting its dragon-curved bed through eastern China's northern and central plains, the canal has drowned many a farmer's plot on which grain or rice had been growing. In turn, another year and another twist of the stream give back the farm, plus a new layer of fertile silt, only to submerge still other fields.

Here and there, the dwellers of the flood plains have scattered bricks and planted rows of trees to hold off the waters that batter at the dikes and locks raised through the centuries. Since trees are valuable for fuel in many of the dry and nearly woodless regions on the canal's path, armed guards frequently watch over these protected areas.

## Boats Use Wind and Man Power

On the waters of the big ditch, as along its shores, the scene has changed little since the first central section of the canal was started more than five centuries before Christ. Swarms of hand laborers still repair broken levees or dredge out, bit by bit in baskets, the mountains of ever-accumulating silt.

Primitive barges, junks, and fishing craft move up and down the chocolate-colored waters and fight their way through narrows, whirlpools, and obstructed channels. When the winds fail, men pole their boats along or pull them from the towpath in lines of harnessed workers, who tug and strain at the task like the "Volga Boatman" (illustration, next page).

To many of the nomad river people, their small houseboat is the only home they have ever known. On deck they cook their frugal meals of rice or millet. Down in the holds they say the traditional prayers before the shrines of their ancestors.

More than prayers are necessary when bandits appear. Boatmen

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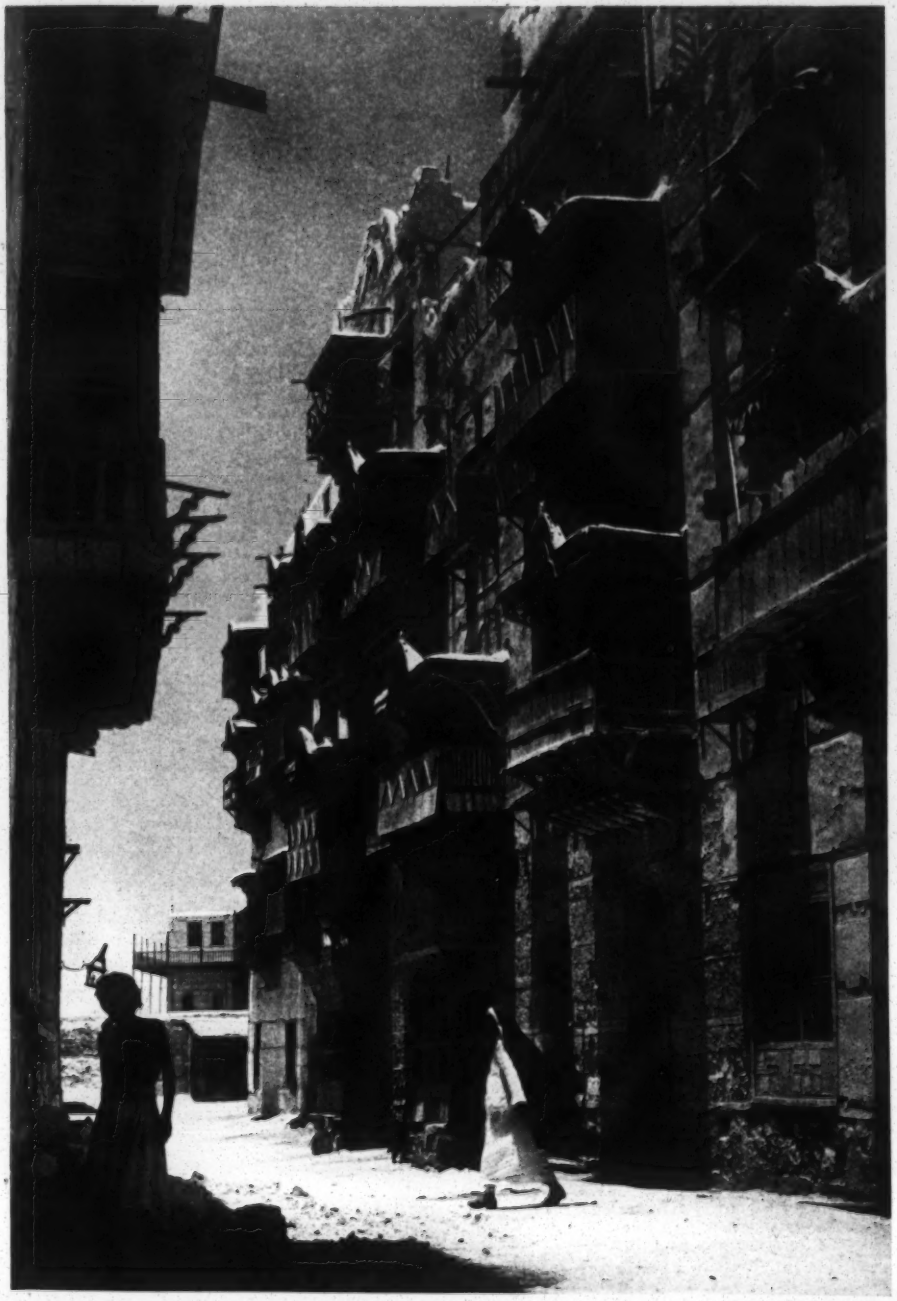

MAYNARD OWEN WILLIAMS

**DURING LULLS BETWEEN ARRIVALS OF TEEMING PILGRIM BOATS, JIDDA STREETS HAVE THE DEAD LOOK OF A STADIUM AN HOUR AFTER THE BIG GAME (Bulletin No. 5)**

Each year 100,000 Mecca-bound Moslems enter their holy land—Saudi Arabia—through this Red Sea port. As pilgrims debark and jam the streets, they are besieged by noisy hawkers, cameleers, and souvenir sellers, while the turbulent scene is watched quietly by veiled women on the balconies.

Bulletin No. 2, November 10, 1947

# Ujelang Beckons Bikinians; Guam Rebuilds

FOUR of the thousands of United States-administered Pacific islands recently made news. Three of the islands figure in one story: the native colony of Bikini is to be moved to Ujelang Island after its unsuccessful transfer from the atom-bomb-test site to neighboring Rongerik.

The twice-transplanted Bikinians will set up housekeeping this time more than 300 miles southwest of their original home (illustration, next page). There they will once again drive palm posts into the sand for the skeleton structure of their simple houses. Dried palm and pandanus leaves will be woven into matting for the walls, and dried palm fronds set over all for a steeply thatched roof.

## Smaller than Bikini

When the water cisterns for collecting rain are ready, the cooking pits dug, and small tentlike matting covers made available to protect the fires from sudden downpours, Ujelang's immigrants will have made a good start toward the few homemaking essentials for Pacific island life.

Ujelang Island, which the 166 immigrants are reported to have chosen in preference to other sites, is the farthest west of the formerly Japanese-mandated Marshall group. A low coral atoll, enclosing an oval lagoon about 13 miles long, it is about the same size as Rongerik. Both Rongerik and Ujelang have less than half as much land as Bikini. Rongerik, however, had the recent disadvantage of a destructive fire in its coconut groves, a natural resource providing shelter, food, and other raw materials.

Bikini, Rongerik, and Ujelang all lie in the northern, less-favored half of the Marshalls. In 1870 Ujelang was completely washed over by a great sea wave. Before World War II it supported only about 50 people, including twelve Japanese who operated a coconut plantation there. The war did not touch Ujelang, but when the atom-bomb tests were made, its people were evacuated. They were on the path of trade winds blowing from the direction of Bikini.

Converted long ago by New England missionaries, the new inhabitants are an extremely religious and modest group. The women generally wear shapeless, ankle-length cotton dresses, even going bathing in their clothes. Government among the former Bikinians is a democratic affair. The chief is chosen by majority consent and is assisted by some of the older men and the much-respected minister.

## Rebuilding Starts at Agaña, Guam Capital

The fourth Pacific island in the news is Guam, where the cornerstone for a new congressional building heralds the rebirth of Agaña, war-devastated capital of the United States possession.

Agaña was a pleasant and well-equipped town of 11,000 people when Guam, with its strategic naval station, was captured by the Japanese five days after the Pearl Harbor attack. The Pacific island, 1,500 miles east of Manila, was retaken in mid-1944, but in the fighting Agaña was leveled.

Now a new Agaña is planned as a model community to hold half of

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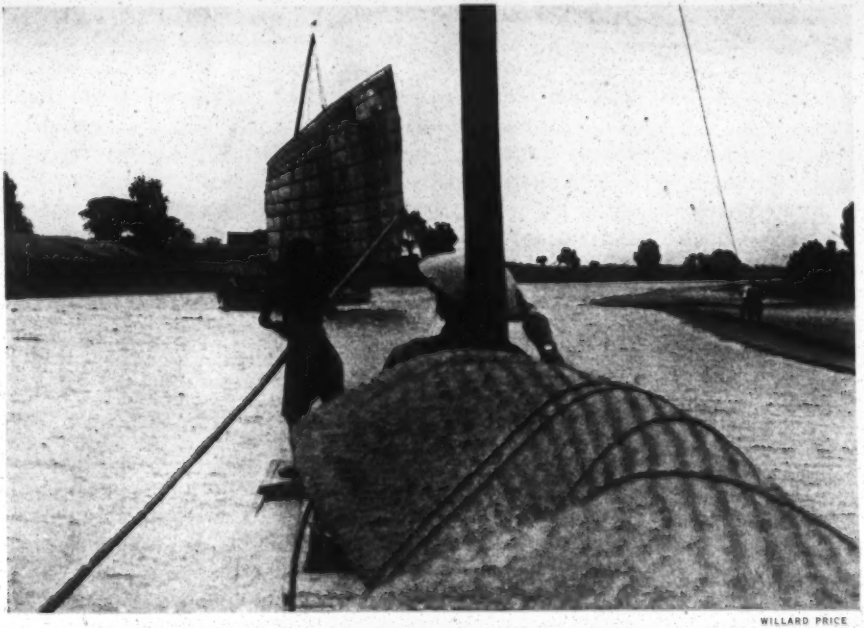
have learned to give them a sack of precious grain to prevent their taking it all. Occasional groups of canalside farmers pool interests to provide a watchman on the waterway. He takes up his bandit-lookout station, near the farmers' loading wharf, armed with a rattle! His duty is to buy off, not fight off, the bandits.

Sometimes the age-old quiet of the land is shattered by a rain procession. Boys with blaring bugles lead; others carry strings of exploding firecrackers fastened to the ends of poles. The elders bear a table on which lies a clay dragon with shell scales. With ceremony and fanfare, the dragon is thrown into the canal. The "evil spirit" is drowned and now rain will come.

Another custom has been witnessed in villages along the canal. When a man-child is one year old his mother places him before a tray containing an abacus, a hammer, a hoe, a Chinese dollar bill, an inkstone and a writing brush. The child chooses his life work by picking up one of the objects: the abacus—a merchant, the hoe—a farmer, and so on.

NOTE: The course of the Grand Canal may be traced on the National Geographic Society's Map of China. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also "Today on the China Coast," in the *National Geographic Magazine* for February, 1945*; "Grand Canal Panorama," April, 1937; and "Ho for the Soochow Ho," June, 1927. *(Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.)*



WILLARD PRICE

**AGAINST THE WIND, GRAND CANAL BOATMEN TAKE TO THE POLE AND THE ROPE**

**The boy plants his pole on the muddy bottom and walks along the plank at the edge of the boat, propelling the craft forward. When he reaches the stern he jerks the shaft free and repeats the operation. The towline reaching back from the two men on shore is attached to the masthead. Its height keeps it from fouling with vessels moored on the bank and from getting wet, thus heavier.**

Bulletin No. 3, November 10, 1947

# Salisbury Cathedral Spire England's Highest

THE 404-foot spire of Salisbury Cathedral, recently said to be in a dangerous condition, tops a structure unique in all England. It is the only cathedral in that country which is the work of a single generation.

In 1220, King Henry III, then a boy of 13, laid the foundation stone. Unlike so many of Europe's cathedrals which have been centuries in construction, Salisbury was built in less than 40 years. Because the work was continuous, the edifice is a perfect example of Early English ecclesiastical architecture (illustration, next page). It is true that the two upper stages of the tower, and the spire, were added in the 14th century, but the architect followed the original style so faithfully that there is no visible evidence of this time gap in the work.

## Early Name Was Sarum

That the cathedral has a door for every month, a window for every day, and a column for every hour in the year is set forth in a local verse. The slim, graceful spire that withstood the buffeting of strong winds for nearly 600 years cracked during a storm in 1930. Nearly three centuries ago, Sir Christopher Wren discovered that the spire was not exactly upright. Today the capstone is two and a half feet off center.

Salisbury, a city of about 26,000 residents, 80 miles southwest of London, had an unusual experience in what might be called its youth. Then known as Sarum, it combined ancient Roman fortifications with the buildings of a Norman cathedral town. Dissension between the military garrison and the clergy in the crowded post, and the harsh climate of the cold, windy hilltop location, remote from a water supply, brought about the removal of the cathedral to the fertile meadowland along the Avon River (not Shakespeare's Avon) a mile or so to the south.

Stone by stone the ancient Norman church was dismantled to provide material for the new cathedral in the valley. The townspeople gradually moved away from the fortified hilltop settlement. They made new homes in the growing village along the Avon where there was work for them. The fortifications fell into disuse with the invention of artillery. By the middle of the 16th century Old Sarum had become a ghost town.

## Schools Typical of a Cathedral Town

Now a prosperous market center, Salisbury retains some medieval landmarks. One old guild hall is preserved as a National Trust; another forms the entrance to a motion-picture theater. A museum contains such prehistoric relics as a collection of flint implements, and objects from Old Sarum, together with a model of that ancestor of modern Salisbury.

The city has the characteristics of a cathedral community. The bishop's palace stands in a spacious garden, close to the cathedral. There are a theological seminary and the ecclesiastical college of St. Edmund's; a girls' normal school occupies King's House, built in the late 14th century.

Among the rare books and manuscripts in the cathedral library is one of the four original copies of the Magna Charta, which had been

Guam's 23,000 people. Until it can be constructed, Agaña's displaced families are temporarily sheltered at Sinajana and similar villages in the southern half of the 200-square-mile island. Many of the family heads are descendants of Chamorro chieftains and have some Spanish, German, Scottish, or American blood. They were businessmen, teachers, or government workers before the war.

Prewar Agaña had a governor's palace built in Spanish days, a cathedral, an electric power plant whose tall stack was the town's chief landmark, and homes of coral limestone and wood planking. There were banks, movies, restaurants, drugstores, taxicab stands, a dime store—in fact, everything to be found in a United States town of similar size.

Ever since Guam was ceded to the United States in 1898, the naval station commandant has been the island's governor. The naval government, interrupted in December, 1941, was formally restored in 1946.

NOTE: Bikini, Guam, Rongerik, and Ujelang may be located on the Society's Map of the Pacific Ocean and the Bay of Bengal.

For additional information, see "Operation Crossroads" (10 color photographs), in the *National Geographic Magazine* for February, 1947; "American Pathfinders in the Pacific," May, 1946; "South from Saipan," April, 1945*; "Springboards to Tokyo," October, 1944; and "Hidden Key to the Pacific," June, 1942*; see also, in the GEOGRAPHIC SCHOOL BULLETINS, "U. S. Asks Trusteeship over Pacific Islands," March 17, 1947; "Spiky Pandanus Is Tropical Utility Tree," November 4, 1946; and "Bikini, in Marshall Islands, Selected for Atom Bomb Test," February 18, 1946.

CARL MARKWITH

**ON MOVING DAY BIKINI WIVES BALANCE BELONGINGS ON THEIR HEADS AND MAKE FOR THE SEA**

This was their first move—in February, 1946, when the Atomic Age overtook their island home. At that time the 166 islanders were transported by the Navy to Rongerik. Now the colony is being moved to Ujelang. All three islands are in the Marshall group. One woman carries a baby on her hip.

Bulletin No. 4, November 10, 1947

# Mexican Shell Mound Reveals Ancient Culture

A LARGE shell mound, or "kitchen midden," which may prove to be the first trace of a pre-pottery, pre-agricultural population, has been discovered in southern Mexico by an archeological expedition of the National Geographic Society and the Smithsonian Institution, in cooperation with the Instituto Nacional de Antropologia y Historia of Mexico.

The shell mound was found in the State of Chiapas, in the area of advanced Indian civilizations of Middle America. It is situated on the Pacific coast, bordering a lagoon surrounded by mangrove swamps.

## No Pottery in Lower Levels

The huge mass contains clamshells mixed with earth, charcoal, and ash, and various objects of human manufacture, piled in a heap about 350 feet long by 250 feet wide and more than ten feet high.

A test trench dug in the mound produced a few fragments of weathered, rather crude pottery from the uppermost levels. In the lower portion no pottery was found. Only obsidian knives and pieces of worked and shaped animal bones were uncovered to represent the manufactures of the ancient inhabitants.

The scientific importance of the find lies in the fact that the lower levels appear to represent a culture which existed in southern Mexico before the development of agriculture and pottery making—that is, prior to the archaic beginnings of the high civilizations of the Mayas, the Olmecs, and the Zapotecs.

The existence of such an ancient hunting and shell-gathering economy has been speculated on by archeologists who have worked in Middle America, but this is the first discovery that can be attributed to such a culture. Thus, the shell mound may contain the earliest cultural remains yet found in southern Mexico.

## Other Sites Discovered

The survey party was led by Dr. Philip Drucker of the Smithsonian Institution. The trip was designed to investigate the archeological resources of the coastal plain of Chiapas, which at one time formed a corridor for the exchange and spread of culture between the populations of Central America and those of southern and central Mexico. Little archeological research had previously been done in this particular region.

Besides the shell mound, numerous sites were found, some of which relate to early phases in the development of Maya culture, and others to later times, not long before the Spanish conquest of the area.

Dr. Drucker previously had served as an assistant to Dr. Matthew W. Stirling of the Smithsonian Institution on a series of National Geographic Society-Smithsonian Institution expeditions to southern Mexico (illustration, next page).

Those expeditions, conducted for eight seasons, resulted in the acquisition of considerable information about the pre-Columbian people of the region. In 1939 the explorers located a stone bearing in Mayan symbols

deposited in the Old Sarum cathedral in the year it was signed—1215.

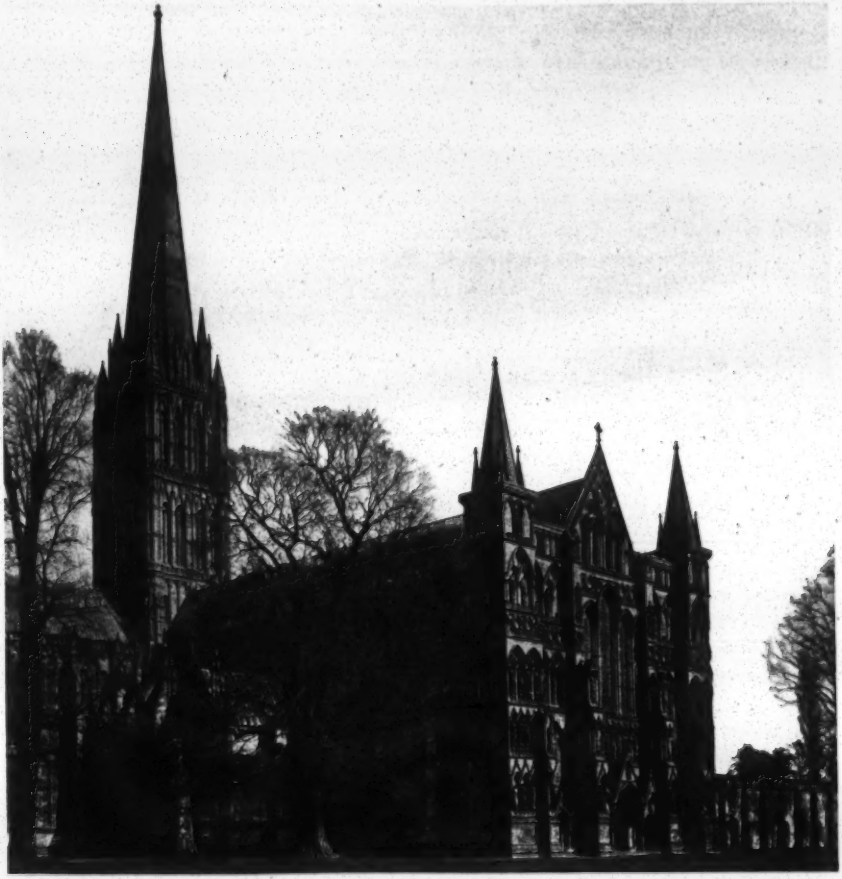
Salisbury's long record crosses many pages of England's history and has many literary associations. It is the "Melchester" of Thomas Hardy's tales of Wessex, the "Barchester" of Anthony Trollope's novels. Henry Fielding wrote part of *Tom Jones* while living a stone's throw from the cathedral. *The Vicar of Wakefield* was first issued by a Salisbury printer, Benjamin Collins, who is said to have paid Goldsmith 21 pounds for a third interest in the novel.

Among several ancient inns is the Old George, dating from the 14th century. There Samuel Pepys stopped in 1668 and complained of his bill.

On the plain a few miles north of the city rises mysterious Stonehenge. The origin of this circle of immense upright stones is unknown. One theory holds that they are the remains of a Druid temple.

NOTE: Salisbury is shown on the Society's Map of the British Isles.

See also, "Cathedrals of England," in the *National Geographic Magazine* for December, 1939; and "Cathedrals of the Old and New World," July, 1922.



SALISBURY'S TOWER AND SPIRES OF PALE GRAY STONE SOAR SKYWARD TO TOP THE ANCIENT ELMS; THE CLOISTER (LOW EXTENSION AT THE RIGHT) IS THE LARGEST IN ENGLAND

Bulletin No. 5, November 10, 1947

# Saudi Arabia to Undergo "Four Year Plan"

IN the once-mysterious land of Saudi Arabia, the Bedouin horsemen and the desert song of light opera are making way for a "four year plan," based on oil wealth, to bring about 20th century improvements.

Saudi Arabia, whose robed and royal delegates have added Oriental color to the United Nations meetings, is a huge country made up largely of sandy wastes, rocky plateaus, and desert scrub. Occasional green and fertile oases break the monotony of sand and stone.

## One-fourth the Size of the United States

The country contains enormous oil reserves, now being developed through concessions to American companies. On revenues gained from this oil production the government bases its new four year plan, in which $270,000,000 is to be spent in building seaports, railways, and airfields, and in maintaining agricultural, health, and educational projects.

Because of still unsettled boundaries, nobody knows the exact size of Saudi Arabia. It is estimated to cover nearly 800,000 square miles. Occupying most of the big Arabian peninsula thrust between the African continent and southwest Asia, it would fill more than a quarter of the entire United States area.

Before the discovery of oil by American prospectors in the early 1930's, Saudi Arabia's chief resources were its livestock and the presence of the sacred Mohammedan shrines—Mecca (illustration, next page) and Medina—which brought in considerable annual income from pilgrimages by the faithful.

Its four or five million people followed the simple life of Biblical times, roving the deserts with their flocks in search of pasture, or gathered together in sun-baked brick settlements on the edges of oases.

## Heavy Drills Bring Up Water as Well as Oil

Within the last decade, industrial innovations have challenged many of the old tribal ways. Oil derricks rising in the desert overshadow the traditional black Arab tents. New roads streak across the landscape, and roaring buses and trucks leave plodding camels behind in clouds of sandy dust.

Settlements of American oil executives, technicians, and workers have sprung up. Heavy machinery now drills wells to tap underground water for thousands of camels where only hundreds could drink before. Under way is an oil pipeline that will stretch more than a thousand miles from the oil fields of eastern Saudi Arabia to an outlet at Sidon, on the eastern Mediterranean coast.

Many Bedouin nomads have settled on permanent farms, aided by government programs of irrigation and the planting of new date groves and wheat and alfalfa fields. Others have gone to work in the oil fields and refining plants, and have learned to vary their old diet of roast sheep and boiled rice with American canned goods.

Two unexpected hazards—floods and locusts—periodically threaten

the earliest recorded date found in the Western Hemisphere—November 4, 291 B. C. Among a large number of sculptures uncovered by the expeditions were colossal stone heads. The two largest, which were discovered in 1946, stand about ten feet high. They are estimated to weigh more than twenty tons each.

NOTE: Chiapas, state where archeologists recently found a shell mound dating from very early times, may be located on the Society's Map of Mexico, Central America, and the West Indies.

For additional information on archeological discoveries in Mexico, see "On the Trail of La Venta Man," in the *National Geographic Magazine* for February, 1947; "La Venta's Green Stone Tigers," September, 1943; "Finding Jewels of Jade in a Mexican Swamp," November, 1942*; "Great Stone Faces of the Mexican Jungle," September, 1940*; and "Discovering the New World's Oldest Dated Work of Man," August, 1939*.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, "Mexico's Unearthed Jade Still Hides Secret of Its Source," January 21, 1946; and "La Venta Giant Head Comes to Washington," October 25, 1943.

RICHARD H. STEWART

**NEAR WHERE ARCHEOLOGISTS UNEARTH SECRETS OF THE PAST, THE ZOTZILS OF CHIAPAS STILL WEAR THE 10-CENTURY-OLD MAYA-TYPE SANDAL, COMPLETE WITH LEATHER ANKLE GUARD**

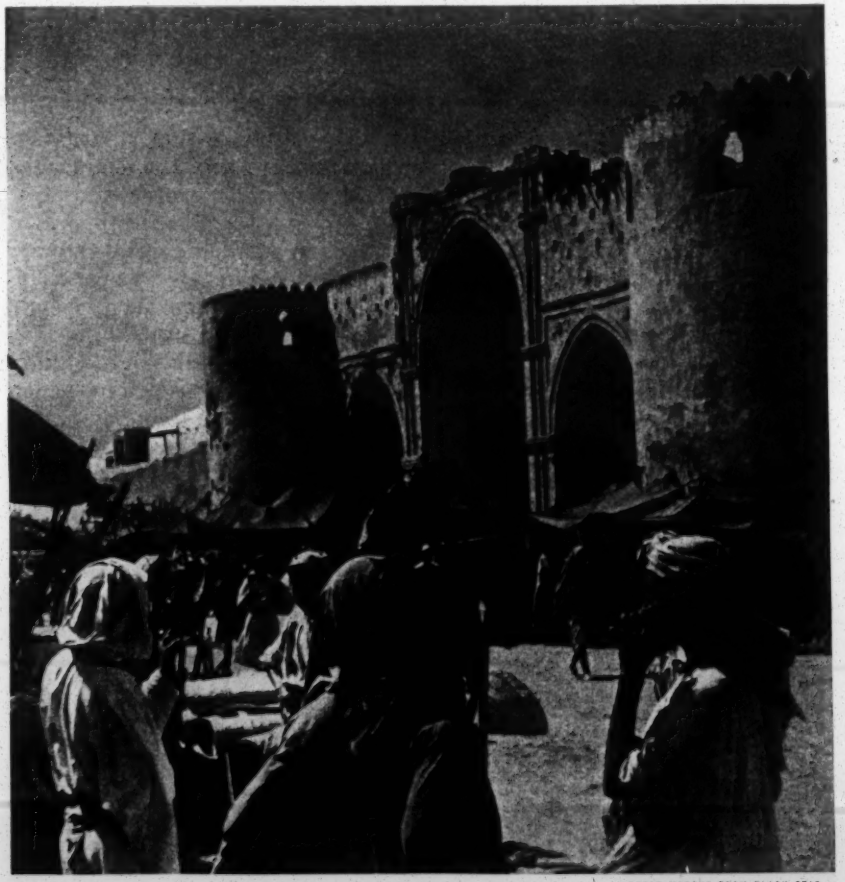
Saudi Arabia's crops. Wadis—watercourses which are dry most of the year—swirl with deadly floods after heavy rains. Though the desert offers little green vegetation to attract the locusts, these age-old pests are still a scourge.

Twelve miles from Jidda (illustration, inside cover) the Middle East Locust Mission is located. This international body directs the important battle against the lowly grasshopper. Scientific methods of extermination are somewhat offset by the Arab desire to keep a few locusts available for eating. The crunchy insect is a desert delicacy.

NOTE: Saudi Arabia is shown on the Society's Map of Asia and Adjacent Areas.

For further information, see "Guest in Saudi Arabia," in the *National Geographic Magazine* for October, 1945*; "Pilgrims' Progress to Mecca," November, 1937; and "An Unbeliever Joins the Hadj," June, 1934.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, May 6, 1946, "Oil Resources Play Key Role in Drama of Mid-East States."



OSCAR MARCUS FROM BLACK STAR

**BEFORE MECCA'S MASSIVE GATE, MOSLEM PILGRIMS RUN A GANTLET OF AWNINGED BOOTHS**

**Merchants try every wile to separate the excited devotee from his money. This "state fair" atmosphere outside the holy city contrasts with the solemnity within—where the Kaaba, "Navel of the World," is the once-a-lifetime goal of every true follower of Allah.**